CHARLESTON NAVAL COMPLEX
CHARLESTON, SOUTH CAROLINA

Engineering Field Division/Activity: SOUTHDIV

Major Claimant: COMNAVSUPSYSCOM/COMNAVSEASYSCOM/CNET/ COMNAVRESFOR/CINCLANTFLT

Size: 2,879 Acres

Funding to Date: $33,198,000

Estimated Funding to Complete: $106,729,000

Base Mission: Provided support and supplies for assigned ships, drydocking, research and test work, and training

Contaminants: Asbestos, organic compounds, cyanide, decontaminating agents, paint, PCBs, POLs, solvents, heavy metals, pesticides, chemical agents

Number of Sites:		Relative Risk Ranking of Sites:			
CERCLA:	0	High:	31	Not Evaluated:	7
RCRA Corrective Action:	109	Medium:	57	Response Complete:	2
RCRA UST:	7	Low:	19	Total Sites:	116
Total Sites:	116				

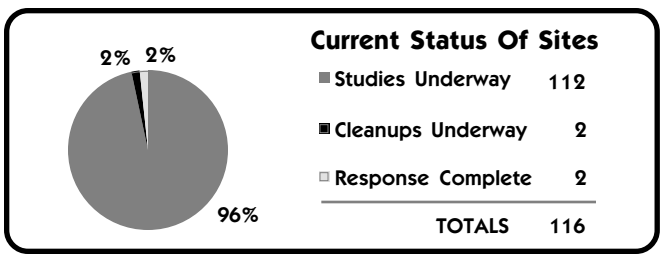
BRAC III

BRAC IV

EXECUTIVE SUMMARY

The Charleston Naval Complex is located on the west bank of the Cooper River about 5 miles north of Charleston, South Carolina. There are multiple Naval commands located on the complex: Naval Shipyard (NSY), Naval Station (NS), Naval Fleet and Industrial Supply Center (FISC), Fleet and Mine Warfare Training Center (FMWTC), and the Naval Reserve Center (NRC) (which is not a closing facility) and several other small organizations. The property and the majority of the commands were slated for closure by the Base Realignment and Closure (BRAC) commission in 1993, except for the FISC, which was closed by the BRAC commission in 1995. In support of the various missions of the multiple commands, typical operations on the complex which contributed to contaminated sites included welding shops, machining shops, metal shops, electrical and electronics shops, painting and sandblasting shops, chemical treatment shops, public works shops, photographic and printing shops, firefighting training areas, medical and dental clinics, storage of supplies, materials and fuels, and treatment and disposal of wastewaters and solid wastes. In the early 1980's, the Navy changed its operational processes to prevent further contamination. The primary sites of concern are areas that were used as landfills or disposal pits without controls for runoff and leachate. The area, originally a tidal marsh, drains to groundwater and nearby wetlands areas, therefore providing a pathway through which contaminants could migrate. The wetlands, high water table, known surface soil contamination and potential for personnel exposure were the primary cause for the high-ranked sites in the Relative Risk Site Evaluation. The facility is under a RCRA Permit which includes environmental cleanup as a legal requirement.

The complex is surrounded by commercial, industrial and residential areas. Due to its location on the river's edge, it is also surrounded by diverse ecosystems. There are many wetlands and tidal marsh areas with a great variety of aquatic life as well as plants, birds and animals. The nearby waterways are sources for fishing and recreational use. The water table is within 3 to 7 feet of the ground surface which increases the possibilities for contaminant migration. The shallow aquifers are not useable due to the high levels of dissolved solids and chlorides. The deeper aquifers are protected by a thick layer of impermeable clay. Drinking water supplies for this area are from surface water sources some distance from the base.



A Restoration Advisory Board (RAB) was formed in March 1994 and has 22 members from the local community and the Navy. The RAB provides community advice on the cleanup program. A Community Relations Plan (CRP) has been written. A committee composed of local residents has been formed to look at reuse options for the property after closure. An Information Repository has been established.

A RCRA Facility Investigation (RFI) study is underway at 112 sites. The NS has 51 sites, the NSY has 39 sites, and the FISC has 22 sites under study. The remaining four sites are Underground Storage Tanks (USTs); one is on FMWTC, two are on FISC, and the other is on NRC. The UST sites are being remediated under the RCRA UST program. The NRC site and one FISC UST site have completed the cleanup and two sites, UST 7 at FISC and UST 1 on FMWTC have a cleanup underway.

Future, plans include completing the RFI phase and moving into the next phase, the Corrective Measures Study (CMS), for these sites in FY97 and FY98. Two UST sites will begin the cleanup process, one in FY96 and one in FY97.

A recent success in the management of the remediation projects on the Charleston Naval Complex involves a reorganization of the sites into groups. This strategy is outlined in the RFI and differs substantially from the normal site by site approach in the RCRA Corrective Action process, but with the large number of sites on the complex, it was essential. The sites were grouped by geographic zones and work plans are written for the zone with certain sections in common for all sites in the zone. For example, the RFI work plan was structured to contain a comprehensive section that included elements applicable to more than one site such as the Project Management Plan, Health and Safety Plan, Sampling and Analysis Plan, CRP and others. Site specific information was then added for those elements not in common. This process, done with the concurrence of the regulatory agencies, has speeded up the document writing and reviewing time to allow the sites to progress through the program faster. With the pressure to get this BRAC property ready for reuse by the public quickly, this zone strategy has been very successful.

For BRAC requirements, the BRAC Cleanup Plan has been published and an Environmental Baseline Survey has been conducted and a draft report is under review. The Reuse Plan has as a short term goal to pursue short term leases of parcels while the environmental cleanup is proceeding and when complete, transferring the property.

CHARLESTON NAVAL COMPLEX
RELEVANT ISSUES

ENVIRONMENTAL RISK

HYDROGEOLOGY - The base is located on the west side of the Cooper River which flows on the east side of the town of Charleston, South Carolina. The eastern bank is undeveloped and contains extensive wetlands along Clouter Creek and Thomas Island. The Naval facilities that comprise the base are located on the western bank of the Cooper River. Much of the base is situated on dredge spoils that were used as fill in the low-lying tidal marsh areas by several small creeks. All surface drainage is directly into Cooper River. The Cooper River flows into the Charleston Harbor which eventually flows to the Atlantic Ocean. Most potable water in the Charleston area comes from surface water sources. There are two aquifers underlying the area, one of which is used as an industrial water source. All shallow groundwater aquifers under the base (water table at 3 to 7 feet) drain to the Cooper River. Pathways exist for contaminants to migrate via surface water runoff and via infiltration into the shallow aquifer to sensitive ecosystems downstream. Dredging in the navigable waterways and the Naval Base docking berths dumps potentially contaminated dredge spoils into nearby wetlands and wildlife habitats. From the 1930's to the early 1970's, these dredge spoils were used to fill in swampy areas on the base, so several large areas of the base are built on dredge spoils.

NATURAL RESOURCES - The wildlife of this area is diverse and includes terrestrial, aquatic, and marine mammals, numerous resident and migratory inland and coastal birds, and a great variety of reptiles and amphibians. Finfish and shellfish are abundant in the estuarine water of the Cooper River, Wando River, and Charleston Harbor. A survey of both Federal and State protected species included twelve animal and one plant species listed as endangered or threatened in the area. The bodies of water in the area are resources used for recreational fishing and collection of shellfish. The area has numerous salt marshes and wetlands. There are also numerous archaeological sites and other cultural resources on the base. A survey was done and the draft report is under review.

RISK - A Baseline Risk Assessment for Human Health and an Ecological Risk assessment will be done by zone in accordance with EPA guidance when the appropriate data has been collected. A major difficulty was encountered in trying to determine background levels of metals for comparison to site data due to the many historical layers of dredge spoils underlying the base. With the cooperation of the EPA, a statistical methodology was developed to establish background levels, a supporting sampling plan designed, and sampling is underway. An Ecological Risk Assessment is being done in phases. A preliminary assessment has been done including habitat evaluation, biological inventory, migration route and exposure route determinations. As site sampling data becomes available, the risk assessment will go on to the next phase. For the DOD Relative Risk Ranking System, 31 sites were ranked as high relative risk. The high rankings are primarily due to known contamination on the sites and the migration potential to the nearby wetlands or exposure of on-site personnel through direct contact with both the soil and the near surface groundwater table.

REGULATORY ISSUES

NATIONAL PRIORITIES LIST - The Hazard Ranking System (HRS) score of 52 for the complex would normally place the base on the National Priorities List (NPL). Since there was no advantage to be gained under CERCLA compared to the Corrective Action program already underway under RCRA, the BRAC Cleanup Team (BCT), including the regulatory agencies, agreed there was no reason to pursue the CERCLA NPL listing. A Compliance Order was issued in 1992 to close Solid Waste Management Unit (SWMU) 25, a plating facility. The tanks and waste were removed and the facility closed in 1993.

LEGAL AGREEMENTS - The sites are under a RCRA Part B Permit rather than a Federal Facility Agreement (FFA). The permit was signed on 5 June 1990. As a condition of the permit, Installation Restoration (IR) program cleanups are done as RCRA Corrective Action under the Hazardous and Solid Waste Amendments (HSWA) portion of the permit. A Corrective Action Management Plan (CAMP) was prepared to provide a compliance schedule including start and completion dates for various phases and submittal dates for documents. Efforts to renegotiate the CAMP schedules are currently underway due to limited funds for FY96 work.

PARTNERING - The EPA and the South Carolina Department of Health and Environmental Control (SCDHEC) have participated in the partnering efforts sponsored by the Navy. Discussions are underway to identify problem areas and ideas for improvement. This partnering effort includes the regulatory agencies, the BRAC Cleanup Team and outside agencies and organizations involved in cleanup decisions.

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in the late 1980's and met quarterly. The TRC was converted to a Restoration Advisory Board (RAB) in March 1994. The RAB has 22 members who represent the Navy, EPA, SCDHEC, natural resource trustees, community members and academia. A charter for the RAB has been finalized. The RAB meets monthly, and has had presentations on the environmental restoration process and soil sampling demonstrations from local experts. Two site visits have been conducted and several public meetings held to further inform the public. A major concern of the public is how clean the Navy is going to leave the property after it closes.

COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was first published in the late 1980's. The CRP was updated in February 1993 to include the recently added Solid Waste Management Units (SWMUs). The CRP is again being revised to incorporate the establishment of the RAB. The RAB participated in creating four Fact Sheets that have been distributed.

INFORMATION REPOSITORY - The investigation is being conducted under the requirements of RCRA, therefore an Administrative Record (official file) is not required. An Information Repository (public information source) has been created and is being updated with the latest documents that are relevant to the cleanup and transfer of any property on the complex.

BASE REALIGNMENT AND CLOSURE

BRAC - There are multiple Navy activities on the complex. Four of the largest activities were listed for closure by the 1993 Base Realignment and Closure (BRAC) Commission: The Shipyard, Naval Station, Fleet and Industrial Supply Center, and the Fleet and Mine Warfare Training Center. Operations on the complex will cease in April 1996 and the complex will be transferred sometime after that, depending on the cleanup schedule. Southern Division of the Naval Facilities Engineering Command will be the cognizant caretaker after closure.

BRAC CLEANUP TEAM - A BRAC Cleanup Team (BCT) was formed in November 1993. The team members are representatives from the Navy, State of South Carolina and EPA Region IV. The BCT has been instrumental in accelerating the cleanup program by providing a decision-making group on site. The team holds regular meetings to discuss documents, resolve problems and review status of the cleanup efforts.

Charleston Naval Complex

DOCUMENTS - A BRAC Cleanup Plan (BCP) was prepared in February 1995. The BCP is currently under revision to include new sites and information on property transfers and leases. An Environmental Baseline Survey (EBS) was finalized in March 1995. In the EBS, the Environmental Condition of Property was assessed according to DOD and American Society for Testing and Materials (ASTM) guidelines. The results are shown in the chart below.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
0 acres	0 acres	0 acres	0 acres	29 acres	605 acres	2,246 acres

LEASE/TRANSFER - So far, no formal Findings Of Suitability to Lease (FOSL) or Transfer (FOST) have been done. However, two acres have been leased to a local marina and 15 acres have been transferred to the National Oceanic and Atmospheric Administration (NOAA) and the State Department.

REUSE - A local reuse committee has been formed and called "BEST" which stands for Building Economic Solutions Together. This committee was established by the governor and includes local residents, government agencies, schools and businesses to identify potential reuse options. A second reuse group, the Re-Development Authority (RDA) is a state agency. Reuse plans must be approved by both groups. The Community Reuse Plan was approved in June 1994 and an Environmental Impact Statement (EIS) survey is underway. Initial reuse plans include a privately-owned commercial shipyard, public recreational facilities and other community and commercial uses.

FAST-TRACK INITIATIVES - One of the primary fast-track efforts is to shorten document review time. By working closely with the regulatory agencies and the public, and through the partnering agreement being established, the cleanup process is expected to proceed as quickly as possible. A Rotosonic drilling process for monitoring well installation has contributed to a fast-track investigation of sites.

HISTORICAL PROGRESS

FY83

Sites 1-8 The Initial Assessment Study, equivalent to a Preliminary Assessment (PA) was completed which identified 8 potential CERCLA sites (Sites 1-8). This study recommended all eight sites for a Confirmation Study, equivalent to an Site Inspection (SI).

FY88

UST 7 (FISC) - The Initial Site Characterization (ISC) was completed.

FY90

UST 7(FISC) - The Corrective Action Plan (CAP) was completed.

FY92

UST 1 and 2 (NS) - Five tanks were removed from the two Underground Storage Tank (UST) sites and the Initial Site Characterization was completed.

FY93

UST 3 (NS) - The ISC phase was completed
UST 1(FISC) - The ISC was completed.

FY94

ALL SITES and SWMUs - The RCRA Facility Assessment (RFA) started in January for all sites on the Naval complex.
Sites 1 and 5, and SWMUs 13-17, 19, 20, 44, 47, 121, 136, 138, 159, 177, 178, 503, 516, 653, 655, 656, 662, 667, 670, 677, 681, 684, 689, 690 and 700 (NS) - The RCRA Facility Investigation (RFI) phase began.
Sites 3 and 8 (FISC) - The RFI phase began.
SWMU 44 (NS) - The Corrective Measures Study (CMS) started in September.
UST 1 (NS) - The CAP was completed.
UST 1 (FISC) - The Implementation of Corrective Action (groundwater monitoring) was completed. The site is considered to be Response Complete.

PROGRESS DURING FISCAL YEAR 1995

FY95

ALL SWMUs - The RFA was completed in June for all sites on the Naval Complex.
SWMUs (NSY) - The RFI started for the SWMUs.
SWMUs (FISC) - The RFI began for all SWMUs (except for Sites 3 and 8 which began in FY94).
SWMUs 4, 36, 37, 109, 504, 556, 607, 609, 613, 620, 621, 691, 692 and 699 (NS) - The RFI phase was started.
UST 2 (NS) - The Contamination Assessment was nearing completion.
UST 7 (FISC) - The Implementation of Corrective Action is underway. Bioremediation was the corrective action used.
UST 1 (NS) - A free product recovery system was installed.

PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

Sites 3 and 11, and SWMUs 2, 38, 39, 42, 43 and 505 (FISC) - The RFI is expected to be completed.
UST 1 (NS) - The Implementation of the Corrective Measures will begin and will include removal of contaminated soil, groundwater treatment and bioremediation.

FY97

SWMUs - The RFI is expected to be completed and the CMS is planned to begin for all the sites on the NSY portion of the complex and also for the remaining SWMUs on the FISC and NS.
UST 2 (NS) - The design of the Corrective Measures will be completed and implementation will begin.

Charleston Naval Complex
PROGRESS AND PLANS

RCRA CA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
RFA		109						
RFI			39	70				
CMS			1	35	69			
DES				35	70			
CMI						35	70	
IRA								
RC			3	1		16	39	50
Cumulative Response Complete			3%	4%		18%	54%	100%
UST	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
ISC	7							
INV								
CAP	4		2					
DES				1				
IMP			2		2	1		
IRA								
RC	2		2		1	1	1	
Cumulative Response Complete	28%		57%		71%	86%	100%	